Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-2.   (Canceled)

1   3.   (Currently amended) A defect inspection method comprising the steps of:

2   applying a focused electron beam onto a sample and conducting scanning;

3   detecting secondary electrons generated from an inspection subject region of said

4   sample at the focused electron beam applying step by using detectors installed in a plurality of

5   directions, thereby obtaining external appearance images of the inspection subject region of said

6   sample picked up from the plurality of directions;

7   picking up images of a comparison subject region designed so as to originally

8   have an external appearance identical with that of the inspection subject region of said sample

9   from a plurality of directions identical with those of the inspection subject region, thereby

10   obtaining external appearance images of the comparison subject region picked up from the

11   plurality of directions;

12   correcting mis-registrations between the external appearance images of the

13   inspection subject region of said sample picked up from the plurality of directions and the

14   external appearance images of the comparison subject region picked up from the plurality of

15   directions that respectively correspond to the external appearance images of the inspection

16   subject region picked up from the plurality of directions; and

17   detecting defects of the inspection subject region by using the external appearance

18   images of the inspection subject region of said sample picked up from the plurality of directions

19   and the external appearance images of the comparison subject region picked up from the

20   plurality of directions corrected in mis-registrationsThe defect inspection method according to

21   claim 1,, wherein the step of correcting the mis-registrations comprises the substeps of:

22   mixing two perspective images obtained by picking up an image of the inspection

23   subject region of said sample from each of two opposed directions with a non-directional

24   electron image, thereby synthesizing a first mixed image;

25   mixing two perspective images obtained by picking up an image of the

26   comparison subject region of said sample from each of the two opposed directions with a non-

27   directional electron image, thereby synthesizing a second mixed image; and

28   comparing the first mixed image with the second mixed image, thereby obtaining

29   mis-registration quantities respectively between the two perspective images and the non-

30   directional electron image of the inspection subject region of said sample and the two perspective

31   images and the non-directional electron image of the comparison subject region.

1   4.   (Original) The defect inspection method according to claim 3, wherein

2   the step of synthesizing the first mixed image comprises the substep of using

3   information of a difference image between two perspective images obtained by picking up an

4   image of the inspection subject region of said sample from each of two opposed directions, and

5   the step of synthesizing the second mixed image comprises the substep of using

6   information of a difference image between two perspective images obtained by picking up an

7   image of the comparison subject region from each of two opposed directions.

           5.   (Canceled)

1   6.   (Currently amended) A defect inspection method comprising the steps of:

2   applying a focused electron beam onto a sample and conducting scanning;

3   detecting secondary electrons generated from an inspection subject region of said

4   sample at the focused electron beam applying step by using detectors installed in a plurality of

5   directions, thereby obtaining external appearance images of the inspection subject region of said

6   sample picked up from the plurality of directions;

7   picking up images of a comparison subject region designed so as to originally

8   have an external appearance identical with that of the inspection subject region of said sample

9   from a plurality of directions identical with those of the inspection subject region, thereby

10   obtaining external appearance images of the comparison subject region picked up from the

11   plurality of directions;

12   correcting mis-registrations between the external appearance images of the

13   inspection subject region of said sample picked up from the plurality of directions and the

14   external appearance images of the comparison subject region picked up from the plurality of

15   directions that respectively correspond to the external appearance images of the inspection

16   subject region picked up from the plurality of directions; and

17   detecting defects of the inspection subject region by using the external appearance

18   images of the inspection subject region of said sample picked up from the plurality of directions

19   and the external appearance images of the comparison subject region picked up from the

20   plurality of directions corrected in mis-registrations~~The defect inspection method according to~~

21   ~~claim 1~~, wherein the step of detecting defects of the inspection subject region comprises the

22   substeps of:

23   using information of a difference image ~~and a sum image~~ of two perspective

24   images obtained by picking up an image of the inspection subject region of said sample from

25   each of two opposed directions; and

26   using information of a difference image ~~and a sum image~~ of two perspective

27   images obtained by picking up an image of the comparison subject region from each of two

28   opposed directions.

1   7.   (Currently amended) A defect inspection method comprising the steps of:

2   applying a focused electron beam onto a sample and conducting scanning;

3   detecting secondary electrons generated from an inspection subject region of said

4   sample at the focused electron beam applying step by using detectors installed in a plurality of

5   directions, thereby obtaining external appearance images of the inspection subject region of said

6   sample picked up from the plurality of directions;

7   picking up images of a comparison subject region designed so as to originally

8   have an external appearance identical with that of the inspection subject region of said sample

9   from a plurality of directions identical with those of the inspection subject region, thereby

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10   obtaining external appearance images of the comparison subject region picked up from the

11   plurality of directions;

12   correcting mis-registrations between the external appearance images of the

13   inspection subject region of said sample picked up from the plurality of directions and the

14   external appearance images of the comparison subject region picked up from the plurality of

15   directions that respectively correspond to the external appearance images of the inspection

16   subject region picked up from the plurality of directions; and

17   detecting defects of the inspection subject region by using the external appearance

18   images of the inspection subject region of said sample picked up from the plurality of directions

19   and the external appearance images of the comparison subject region picked up from the

20   plurality of directions corrected in mis-registrations~~The defect inspection method according to~~

21   ~~claim 1~~, wherein the step of detecting defects of the inspection subject region comprises the

22   substeps of:

23   obtaining a difference image between a non-directional electron image obtained

24   by picking up an image of the inspection subject region of said sample and a non-directional

25   electron image obtained by picking up an image of the comparison subject region, by using local

26   perturbation; and

27   detecting defects of the inspection subject region by using information of the

28   difference image obtained by using the local perturbation.

1   8.   (Currently amended) A defect inspection method according to claim

2   [[1]]6, further comprising the step of classifying the detected defects by processing the defect

3   region.

1   9.   (Original) A defect inspection method comprising the steps of:

2   applying a focused electron beam onto a sample and conducting two-dimensional

3   scanning on an inspection subject region;

4   detecting secondary electrons generated from an inspection subject region of said

5   sample at the focused electron beam applying step by using a plurality of detectors, thereby

6   obtaining a plurality of external appearance images of the inspection subject region of said

7   sample;

8   picking up images of a comparison subject region designed so as to originally

9   have an external appearance identical with that of the inspection subject region of said sample by

10   using said plurality of detectors, thereby obtaining a plurality of external appearance images of

11   the comparison subject region;

12   combining the plurality of external appearance images of the inspection subject

13   region of said sample to form a first synthetic image and combining the plurality of external

14   appearance images of the comparison subject region to form a second synthetic image;

15   obtaining a mis-registration quantity between the formed first synthetic image and

16   the formed second synthetic image;

17   correcting mis-registrations between the plurality of external appearance images

18   of the inspection subject region of said sample and the plurality of external appearance images of

19   the comparison subject region that respectively correspond to the plurality of external appearance

20   images of the inspection subject region, based on the obtained mis-registration quantity; and

21   detecting defects of the inspection subject region by using the plurality of external

22   appearance images of the inspection subject region of said sample and the plurality of external

23   appearance images of the comparison subject region corrected in the mis-registrations.

1   10.   (Original) The defect inspection method according to claim 9, wherein at

2   the step of obtaining external appearance images of the inspection subject region of said sample,

3   the plurality of external appearance images of the inspection subject region of said

4   sample comprise two perspective images obtained by picking up an image of the inspection

5   subject region of said sample from each of two opposed directions, and a non-directional

6   electron image, and

7   the plurality of external appearance images of the comparison subject region

8   comprise two perspective images obtained by picking up an image of the comparison subject

9   region from each of two opposed directions, and a non-directional electron image.

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1   11.   (Original) The defect inspection method according to claim 9, wherein the

2   step of correcting the mis-registrations comprises the substeps of:

3   mixing two perspective images obtained by picking up an image of the inspection

4   subject region of said sample from each of two opposed directions with a non-directional

5   electron image, thereby synthesizing a first mixed image;

6   mixing two perspective images obtained by picking up an image of the

7   comparison subject region of said sample from each of the two opposed directions with a non-

8   directional electron image, thereby synthesizing a second mixed image; and

9   comparing the first mixed image with the second mixed image, thereby obtaining

10   mis-registration quantities respectively between the two perspective images and the non-

11   directional electron image of the inspection subject region of said sample and the two perspective

12   images and the non-directional electron image of the comparison subject region.

       12-14. (Canceled)

1   15.   (Currently amended) A defect inspection method comprising the steps of:

2   applying a focused electron beam onto a sample and conducting scanning;

3   picking up images of an inspection subject region of said sample from a plurality

4   of directions, thereby obtaining a plurality of external appearance images of the inspection

5   subject region;

6   picking up images of a comparison subject region designed so as to originally

7   have an external appearance identical with that of the inspection subject region of said sample

8   from a plurality of directions, thereby obtaining a plurality of external appearance images of the

9   comparison subject region;

10   detecting defects of said sample by using the plurality of external appearance

11   images of the inspection subject region and the plurality of external appearance images of the

12   comparison subject region;

13   classifying the detected defects;

14   displaying the classified defects on a screen,

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15 wherein the step of detecting said defects comprises the substeps of:

16 correcting mis-registrations between the plurality of external appearance images

17 of the inspection subject region and the plurality of external appearance images of the

18 comparison subject region; and

19 detecting defects by comparing the plurality of external appearance images of the

20 inspection subject region and the plurality of external appearance images of the comparison

21 subject region corrected in the mis-registrations~~The defect inspection method according to claim~~

22 ~~14,~~ wherein the step of correcting the mis-registrations comprises the substeps of:

23 mixing two perspective images obtained by picking up an image of the inspection

24 subject region of said sample from each of two opposed directions with a non-directional

25 electron image, thereby synthesizing a first mixed image;

26 mixing two perspective images obtained by picking up an image of the

27 comparison subject region of said sample from each of the two opposed directions with a non-

28 directional electron image, thereby synthesizing a second mixed image;

29 comparing the first mixed image with the second mixed image, thereby obtaining

30 mis-registration quantities respectively between the two perspective images and the non-

31 directional electron image of the inspection subject region of said sample and the two perspective

32 images and the non-directional electron image of the comparison subject region; and

33 correcting mis-registrations respectively between the two external appearance

34 images and the non-directional electron image of the inspection subject region of said sample

35 and the two external appearance images and the non-directional electron image of the

36 comparison subject region, based on the obtained mis-registration quantities.

  16-17. (Canceled)

1 18. (Currently amended) A defect inspection method comprising the steps of:

2 picking up images of a first region of a sample from a plurality of directions,

3 thereby obtaining a plurality of external appearance images of the first region;

4 picking up images of a second region of said sample from a plurality of

5 directions, thereby obtaining a plurality of external appearance images of the second region;

6   correcting mis-registrations between the plurality of external appearance images

7   of the first region and the plurality of external appearance images of the second region;

8   detecting defects of said sample by using the plurality of external appearance

9   images of the first region and the plurality of external appearance images of the second region

10   corrected in the mis-registrations;

11   classifying the detected defects; and

12   storing information concerning the classified defects~~The defect inspection method~~

13   ~~according to claim 16~~, wherein the step of correcting the mis-registrations comprises the substeps

14   of:

15   mixing two perspective images obtained by picking up an image of the first

16   region of said sample from each of two opposed directions with the image obtained by picking

17   up an image from the different direction, thereby synthesizing a first mixed image;

18   mixing two perspective images obtained by picking up an image of the second

19   region of said sample from each of two opposed directions with the image obtained by picking

20   up an image from the different direction, thereby synthesizing a second mixed image;

21   comparing the first mixed image with the second mixed image, thereby obtaining

22   mis-registration quantities respectively between the two perspective images and the image

23   obtained by picking up an image from the different direction of the first region of said sample

24   and the two perspective images and the image obtained by picking up an image from the

25   different direction of the second region of said sample; and

26   correcting mis-registrations respectively between the two perspective images and

27   the image obtained by picking up an image from the different direction of the first region of said

28   sample and the two perspective images and the image obtained by picking up an image from the

29   different direction of the second region, based on the obtained mis-registration quantities.

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1   19.   (Currently amended) A defect inspection method comprising the steps of:

2   picking up images of a first region of a sample from a plurality of directions,

3   thereby obtaining a plurality of external appearance images of the first region;

4   picking up images of a second region of said sample from a plurality of

5   directions, thereby obtaining a plurality of external appearance images of the second region;

6   correcting mis-registrations between the plurality of external appearance images

7   of the first region and the plurality of external appearance images of the second region;

8   detecting defects of said sample by using the plurality of external appearance

9   images of the first region and the plurality of external appearance images of the second region

10   corrected in the mis-registrations;

11   classifying the detected defects; and

12   storing information concerning the classified defects~~The defect inspection method~~

13   ~~according to claim 16~~, wherein the step of detecting said defects uses,

14   information of a difference image ~~and information of a sum image~~ of two

15   perspective images obtained by picking up an image of the first region of said sample from each

16   of two opposed directions, and

17   information of a difference image ~~and information of a sum image~~ of two

18   perspective images obtained by picking up an image of the second region from each of two

19   opposed directions.

    20-21. (Canceled)

1   22.   (Currently amended) A defect inspection method comprising the steps of:

2   picking up images of a first region of a sample from a plurality of directions,

3   thereby obtaining a plurality of external appearance images of the first region;

4   picking up images of a second region of said sample from a plurality of

5   directions, thereby obtaining a plurality of external appearance images of the second region;

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6   transmitting data of the plurality of external appearance images of the first region

7   of said sample and data of the plurality of external appearance images of the second region of

8   said sample;

9   detecting defects of said sample by using the transmitted plurality of external

10   appearance images of the first region of said sample and the transmitted plurality of external

11   appearance images of the second region of said sample; and

12   classifying the detected defects~~The defect inspection method according to claim~~

13   ~~21~~, wherein the step of detecting said defects uses,

14   information of a difference image ~~and information of a sum image~~ of two

15   perspective images obtained by picking up an image of the first region of said sample from each

16   of two opposed directions, and

17   information of a difference image ~~and information of a sum image~~ of two

18   perspective images obtained by picking up an image of the second region from each of two

19   opposed directions.

23.   (Canceled)

1   24.   (New) A defect inspection apparatus comprising:

2   electron beam irradiation unit for irradiating an inspection target with an

3   electronic beam focused thereon in a scanning manner;

4   a detection unit including a pair of narrow angle electron detectors and a non-

5   directional electron detector, the narrow angle electron detectors detecting in narrow angle

6   directions which are different from each other, electrons generated from the inspection target

7   which is irradiated with the electron beam focused by the electron beam irradiation unit;

8   an imaging unit for imaging a pair of detection signals detected by the pair of

9   narrow angle electron detectors of the detection unit to produce a pair of perspective images, and

10   for imaging a detection signal detected by the non-directional electron detector to produce a

11   secondary electron image; and

12   an image processing unit for processing respective images of a defect portion and

13   a reference portion of the inspection target which are imaged through the imaging unit by

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14   detecting the defect portion and the reference portion through the detection unit so as to detect a

15   defect position of the inspection target;

16   wherein the image processing unit calculates a difference image of each of the

17   pair of perspective images of the respective defect and reference portions, and detects the defect

18   position of the inspection target from the calculated respective difference images between the

19   defect and reference portions.

1   25.   (New) A defect inspection apparatus according to Claim 24 wherein the

2   image processing unit calculates a difference image concerning the calculated respective

3   difference images between the defect and reference portions, calculates a difference image

4   between the calculated difference image of the defect portion and the calculated difference image

5   of the reference portion, calculates a difference image of the secondary electron image between

6   the defect portion and the reference portion, and detects the defect position of the inspection

7   target from the calculated difference image between the defect portion and reference portion and

8   the calculated difference image of the secondary electron image between the defect portion and

9   the reference portion.

1   26.   (New) A defect inspection apparatus comprising:

2   an electron beam irradiation unit for irradiating an inspection target with an

3   electronic beam focused thereon in a scanning manner;

4   a detection unit including a pair of narrow angle electron detectors and a non-

5   directional electron detector, the narrow angle electron detectors detecting in narrow angle

6   directions which are different from each other, electrons generated from the inspection target

7   which is irradiated with the electron beam focused by the electron beam irradiation unit;

8   an imaging unit for imaging a pair of detection signals detected by the pair of

9   narrow angle electron detectors of the detection unit to produce a pair of perspective images, and

10   for imaging a detection signal detected by the non-directional electron detector to produce a

11   secondary image;

12   a three-dimensional shape image calculation unit for calculating from the pair of

13   perspective images and the secondary image which are imaged by the imaging unit, a three-

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14   dimensional shape of a part or a whole region of these images to produce a three-dimensional

15   shape image; and

16   an image processing unit for processing the three-dimensional shape image of a

17   defect portion and a reference portion of the inspection target, which is produced from the three-

18   dimensional shape image calculation unit by detecting the defect portion and the reference

19   portion through the detection unit and by imaging the defect portion and the reference portion so

20   as to detect a defect position of the inspection target.